

erally over the Yazoo Valley, the average from 31 stations being 3.96 inches, about 0.3 inch above the normal. Nearly the normal precipitation occurred over the Valley of the Big Black, the average being 3.85 inches. The precipitation from 20 stations in the Ouachita Valley averaged 3.09 inches, about 1.4 inches below the normal.

Louisiana coastal plain.—The precipitation was unevenly distributed over this drainage area, being excessive in some localities and light in others. The average from 33 stations was 5.88 inches, about 0.3 inch above the normal.

Monthly precipitation and departures from the normal for the various States and parts of States (in inches) are reported as follows: Colorado area, 1.16, -0.50; New Mexico area, 1.06, -0.84; Texas area, 0.55, -3.91; Kansas area, 0.66, -4.01; Oklahoma, 1.12, -2.63; Missouri area, 2.75, -2.01; Tennessee area, 3.10, -1.19; Arkansas, 2.53, -1.77; Mississippi area, 4.06, +0.07; Louisiana, 4.63, -0.68.

RIVERS.

Regarding conditions over the headwaters of the Arkansas River in Colorado, Mr. F. H. Brandenburg, district forecaster, says:

The discharge of the Arkansas in its upper reaches above the headgates of the large irrigation canals was above the average and nearly as great as that of June, 1909, when the maximum discharge of the last five years occurred. From the 1st of the month, the date of the lowest stage, to the 22d, when the highest occurred, the rise was steady, with practically no interruption, and the same is true of the decline that followed to the end of the month. East of the mountains the flow was small and irregular.

In Kansas and Oklahoma the Arkansas and its tributaries were low during the month, except that the south Canadian was high at the opening of the month, but the water fell rapidly in this stream. In Arkansas low stages prevailed during the greater part of the month and the river was navigable only for a few days in the first decade.

Changes in the Red River were slight and low stages prevailed at the close of the month.

Low stages prevailed in the White River. At Clarendon on the lower White the river declined from a stage of 14 feet on the 1st to a stage of 7.9 feet on the 21st, and the water continued low during the remainder of the month.

Low stages prevailed in the upper Ouachita during the month. The stage was high at Monroe during the first decade, but a rapid fall began on the 10th and the water was low at the close of the month.

Below St. Louis the Mississippi fell at all stations, except that a slight rise commenced at Memphis on the 24th and reached Vicksburg on the 30th. Low stages prevailed generally at the close of the month.

NOTES.

Oklahoma (J. Pemberton Slaughter, section director).—Conditions were very unfavorable, the weather of the month being unprecedentedly hot and dry. Wheat, oats, and upland corn are greatly damaged, or a failure. Wells, springs, and small streams were dry at the close of the month, and in many sections there was a scarcity of water for stock.

Kansas (T. B. Jennings, section director).—This has been the hottest and driest weather of record for the month of June.

Missouri (George Reeder, section director).—Over the southern part of Missouri, June, 1911, was the warmest and driest of record.

Mississippi (J. H. Scott, section director).—Thunderstorms were of frequent occurrence, but, as a rule, were

not accompanied by high winds, and only a few stations reported hail. Lightning struck a church steeple in Vicksburg on the afternoon of the 19th, doing minor damage to the roof.

Commissioners have been appointed for the Riverside drainage district, which proposes to drain about 25,000 acres of land through the center of Washington County, Miss. Engineers will be at once employed to make a survey and estimate the cost of the project. About three months will probably be required to complete the survey.

New Orleans, La.—The maximum temperature was 95° or above on nine days in June, being a greater number of days with such temperature than has previously been recorded during any entire year.

THE DROUGHT IN THE OZARKS OF SOUTHWESTERN MISSOURI IN 1911.

By JOHN S. HAZEN, Local Forecaster, Springfield, Mo.

No rain has fallen in Springfield, Mo., since the last day of April, 1911, except small amounts which only slightly relieved the generally dry conditions. The period of 60 days, from May 1 to June 30, almost without rain, breaks all records in this locality for continued dry weather at this season of the year. Showers fell on a number of days during this period, but the amounts were so small that they were of no real benefit, and vegetation is parched.

Hay, oats, gardens, berries, and pastures are failures. Apples are falling badly, and should the dry weather continue that crop will be ruined. In many orchards where the trees were not sprayed, or properly cared for otherwise, the fruit is practically ruined, but in those orchards which were smudged, sprayed, and given proper care the fruit is doing fairly well. The protection from low temperatures by smudging during the blooming period apparently gave more stamina to the fruit, and the orchards that were best protected at that time are in better condition than those not smudged.

Corn has been unusually well cultivated on account of the dry weather, and farmers are realizing some of the advantages of the principle of dry farming in the sustained vigor and growth of most of that crop.

The present period of dry weather has been accentuated by exceptionally high day temperatures during much of the time, by an abnormally high percentage of sunshine, and unusually low relative humidity. Much of the time during June the relative humidity was below 30 per cent.

A total precipitation of less than 12 inches during the last eight months, with a deficiency during the last two months, normally the wettest and principal crop-growing months of the season, of nearly 9 inches, indicates without doubt that this section has suffered severely. Conflicting opinions are held by persons in the vicinity of Springfield with regard to the severity of the drought, which appears to be due to the fact that local rains have occurred over restricted areas near the city. Heavy showers have been reported near Springfield during the last two months, but the territory covered in these cases has been very small and the results, so far as mitigating the general droughty conditions over the section under discussion, have been insignificant.

As a criterion of the conditions in this locality, potatoes and hay are quoted at higher prices than for years, all live stock is being fed full winter rations, water is lower than it has been for years, and the city water company is extending its mains to a new source of supply.